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METHOD & APPARATUS FOR  
MULTILAYER DEPOSITION  
UTILIZING A COMMON ION BEAM  
SOURCE

**Abstract of the Disclosure**

A single, or common, ion beam source is utilized for ion beam deposition (IBD) of defect-free multilayer coatings, e.g., multilayer, carbon-based protective overcoats for magnetic and/or magneto-optical (MO) data recording/information storage and retrieval media such as hard disks. According to the inventive methodology, a plurality of source gas supply means for supplying a single IBD source with different source gases for each of the layers of the multilayer are selectively operated in "vent" and "run" modes by means of a plurality of valves, the opening and closing of which are determined by a programmable gas flow controller. The inventive method and apparatus advantageously provide IBD of multilayer coatings with minimum cross-contamination of individual layers, at a reduced equipment cost and size obtained by elimination of the need for separate ion beam sources and associated vacuum pump means for each constituent layer of the multilayer.